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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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John Mantegna

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EXAMINER

LAZARO, DAVID R

ART UNIT

PAPER NUMBER

2155

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	09/845,083		MANTEGNA ET AL.	
	Examiner		Art Unit	
	David Lazaro		2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,8-12,15,18-22,25 and 28-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,8-12,15,18-22,25 and 28-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/22/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed 11/22/2006.
2. Claims 1, 11, 21, 31, 32 and 33 were amended.
3. Claims 3, 4, 6, 7, 13, 14, 16, 17, 23, 24, 26 and 27 are canceled.
4. Claims 34-40 are newly added.
5. Claims 1-2, 5, 8-12, 15, 18-22, 25 and 28-40 are pending in this office action.

Response to Amendment

6. Applicant's arguments with respect to claims 1-2, 5, 8-12, 15, 18-22, 25 and 28-40 have been considered but are moot in view of the new ground(s) of rejection.
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claim 40 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
10. With respect to Claim 40, the claimed subject matter is not drawn to a practical application. Particularly, a useful, concrete and tangible result is not achieved. The claim language states, "comparing the determined communication delay with the

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predetermined range; and making determinations related to latency adjustment based on the comparison." Making determinations amounts to an abstract idea and does not produce a useful, concrete and tangible result (i.e., is not real world, does not enable usefulness to be realized). As such the claimed invention is directed to non-statutory subject matter.

11. To overcome this rejection, the examiner suggests adding "sample modifying" subject matter similar to the other independent claims. For example:

"modifying a number of samples of a playback data block passing through the receiving buffer based on the determinations related to latency adjustment."

Claim Rejections - 35 USC § 112

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 1, 11, 21, 34, 35, 36, 40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

14. Claim 1 states the following limitation:

"measuring an instantaneous communication delay arising from a receiving data buffer two or more times over a time window that is long enough to capture a complete cycle of high-to-low fluctuations in the receiving data buffer"

The measured instantaneous communication delay is used for computing a determined communication delay by averaging the measured delays. The determined delay is used for latency adjustment through sample modification. In the specification, on page 4, lines 14-20, a time window (TW1) is described in relation to measurements of buffer delay. The size of TW1 is described as being "small enough to reduce and/or minimize the amount of time required to perform dynamic latency management, yet generally is large enough to achieve the desired delay measurement accuracy. Page 4 of the specification further describes the latency adjustment through sample modification.

On pages 5-6 of the specification, a time window (TW2) is described in relation to determining an optimal operating range for the predetermined range for range of a communication delay. TW2 is described as being "long enough to capture the complete cycle of high-to-low fluctuations in data buffer size" (Page 5 lines 30-31). Page 6, lines 8-10, of the specification states, "the time window TW2 generally is greater than the time window TW1 used in the delay measurement".

Based on these descriptions, it is clear that TW1 and TW2 are different time windows are used in different aspects of the invention. Particularly, TW1 is used in is specifically used in the measurement of the instantaneous communication delay. As such, TW1 appears to correlate to the time window in the cited limitation above, where

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the instantaneous communication delay is measured two or more times. In contrast, TW2 is used for determining the upper and lower bounds of the predetermined range, thus established an optimal range for the predetermined range. The predetermined range is corresponds to the limitations "accessing a predetermined range" and the "upper or lower bound of the predetermined range" in claim 1.

The issue of written description is manifested by the claim language of claim 1 describing what corresponds to the time window TW1 as having the characteristics of TW2. There is no description in the specification supporting TW1 being "long enough to capture the complete cycle of high-to-low fluctuations in data buffer size" or that TW1 and TW2 are the same time window.

Claims 11, 21 and 40 have similar claim language and are rejected for the same reasons

The examiner suggests changing the claimed characteristics of the time window to coincide with those described on page 4, lines 17-20. Be aware that changes may be required for claims 37-39 if amendments are made.

15. With respect to claims 34, 35 and 36, the subject matter of these claims is directed towards modifying the predetermined range in relation to its upper or lower bounds. Specially, they each include the language "if at least one individual delay is present during the time window". As discussed above, the specification, on pages 5-6, describes time window TW2 as being the window used for determining an optimal range for the predetermined range. This is a different time window than that used for measuring the instantaneous communication delay. The time window of the

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independent claims is the time window for measuring the instantaneous communication delay. As such, this conflicts with the time window of claims 34, 35 and 36, as these claims are directed towards determining the optimal range for the predetermined range, which uses a different time window (TW1 versus TW2). There is no description in specification of using the time window for measuring the instantaneous communication delay (TW1) as the time window for determining the optimal range for the predetermined range.

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18. Claim 21 recites the limitation "wherein instructions for causing a computer to modify". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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20. Claims 1, 2, 5, 9-12, 15, 18-22, 25, 28-33 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,862,298 by Smith et al. (Smith) in view of "Skew detection and compensation for Internet audio applications" by Hodson et al., ICME 2000, July 2000, Vol. 3 (hereinafter Hodson).

21. With respect to Claim 1, Smith teaches a method for dynamic latency management in a real-time electronic communication comprising:

measuring an instantaneous communication delay arising from a receiving data buffer two or more times over a time window that is long enough to capture a complete cycle of high-to-low fluctuations in the receiving data buffer (Col. 5 lines 55- Col. 6 line 16: APO measured over a number of frames, typically 100);

determining a communication delay by averaging the instantaneous communication delay measurements (Col. 5 lines 55- Col. 6 line 16: APV is determined as a moving average of APO);

accessing a predetermined range for a communication delay, the predetermined range including an upper and lower bound (Col. 6 lines 17-31 and lines 48-57:

$(Jb_{size}/2) * growth_{thresh}$ and $(Jb_{size}/2) * shrink_{thresh}$);

comparing the determined communication delay with the predetermined range for a communication delay (Col. 6 lines 17-31 and lines 48-57: APV compared with $(Jb_{size}/2) * growth_{thresh}$ and $(Jb_{size}/2) * shrink_{thresh}$);

if, based on the comparison, the determined communication delay is determined to be outside the upper or lower bound of the predetermined range, determining a latency adjustment necessary to adjust the size of the determined communication delay

to within the predetermined range (Col. 6 lines 17-31 and lines 48-57: comparisons determine adjustments to be made); and

modifying a number of samples of a playback data block passing through the receiving data buffer based on the latency adjustment determined to be necessary to adjust the size of the determined communication delay (Col. 6 lines 17-31 and lines 48-57 and Col. 8 lines 59-66: samples can be duplicated or removed).

Smith does not explicitly disclose wherein modifying the number of samples further comprises performing heuristic resampling of a playback block. Hodson teaches modifying samples by performing heuristic resampling of a playback block (Page 2, section 3, particularly the second paragraph under section 3 - sample modifications are performed using heuristic resampling).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method (and corresponding computer program and computer system) disclosed by Smith and modify it as indicated by Hodson such that it further comprises wherein modifying the number of samples further comprises performing heuristic resampling of a playback block. One would be motivated to have this, as it is desirable to be able to modify samples without introducing audible distortions (Page 2, section 3, first paragraph and section 4, first paragraph).

22. With respect to Claims 2, 12 and 22, Smith further teaches wherein the number of samples is modified without introduction audible artifacts (IN smith: col. 9 lines 12-21; and In Hodson: Page 2, section 3, first paragraph and section 4, first paragraph).

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23. With respect to Claims 5, 15 and 25, Smith further teaches wherein the real-time electronic communication includes an audio communication (Col. 1 lines 6-12).

24. With respect to Claims 8, 18 and 28, Smith further teaches wherein performing heuristic resampling comprises: analyzing multiple consecutive samples of audio data in the playback block; identifying consecutive samples with minimal variation in a parameter of their data; and adjusting the number of samples in the identified consecutive samples (In Hodson: Page 2, section 3).

25. With respect to Claims 9, 19 and 29, Smith further teaches wherein adjusting the number of samples comprises removing a sample from the identified consecutive samples (In Smith: Col. 8 lines 59-66; In Hodson: Page 2, section 3).

26. With respect to Claims 10, 20 and 30; Smith further teaches wherein adjusting the number of samples comprises adding a sample from the identified consecutive samples (In Smith: Col. 8 lines 59-66; In Hodson: Page 2, section 3).

27. With respect to Claims 31, 32 and 33, Smith further teaches wherein accessing a predetermined range for a communication delay comprises accessing an optimal range for the communication delay (In Smith: Col. 8 lines 36-51).

28. With respect to Claims 37, 38 and 39, Smith further teaches wherein a complete cycle of high-to-low fluctuations in the receiving data buffer comprises a cycle that takes into account fluctuations in the data buffer size, the fluctuations being caused by a relationship between the asynchronous processes of receiving data from a source and outputting data for playback (In Smith: Col. 1 lines 46-59 and Col. 5 lines 61-67).

29. With respect to Claim 40, Smith teaches a method for dynamic latency management in a real-time electronic communication comprising:

measuring an instantaneous communication delay arising from a receiving data buffer two or more times over a time window that is long enough to capture a complete cycle of high-to-low fluctuations in the receiving data buffer (Col. 5 lines 55- Col. 6 line 16: APO measured over a number of frames, typically 100);

determining a communication delay by averaging the instantaneous communication delay measurements (Col. 5 lines 55- Col. 6 line 16: APV is determined as a moving average of APO);

accessing a predetermined range for a communication delay, the predetermined range (Col. 6 lines 17-31 and lines 48-57);

comparing the determined communication delay with the predetermined range (Col. 6 lines 17-31 and lines 48-57: APV compared with $(Jb_{size}/2) * growth_{threshold}$ and $(Jb_{size}/2) * shrink_{thresh}$);

making determinations related to latency adjustment based on the comparison (Col. 6 lines 17-31 and lines 48-57: comparisons determine adjustments to be made)

Conclusion

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David Lazaro
February 2, 2007



SALEH NAJJAR
SUPERVISORY PATENT EXAMINER